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[54] **SYSTEM AND METHOD FOR PERFORMING IMAGE DIRECTED ROBOTIC ORTHOPAEDIC PROCEDURES WITHOUT A FIDUCIAL REFERENCE SYSTEM**

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[58] Field of Search 606/1, 130; 128/920, 128/922; 600/425, 429

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[57] ABSTRACT

A method for transforming a bone image data set representing at least a partial image of a long bone to a robotic coordinate system, comprising: generating the bone image data set from a bone image; registering a bone digitizer arm to the robotic coordinate system; generating a digitized bone data set by taking bone surface position measurements with the digitizer arm; and transforming the bone image data set into the robotic coordinate system by performing a best-fit calculation between coordinates of the bone image data set and corresponding coordinates of the digitized bone data set.

26 Claims, 7 Drawing Sheets

